

DOCKET FILE COPY ORIGINAL

EX PARTE OR LATE FILED

RECEIVED

JUL 11 1996



FEDERAL COMMUNICATIONS COMMISSION  
OFFICE OF SECRETARY

Suite 1000  
1120 20th Street, N.W.  
Washington, DC 20036  
202 457-3810

July 11, 1996

Mr. William F. Caton  
Secretary  
Federal Communications Commission  
1919 M Street, N.W., Room 222  
Washington, D.C. 20554

RE: Ex Parte Meeting  
CC DK+. No. 96-98

Dear Mr. Caton:

On July 10, 1996, Tracy Wyman of Deloitte & Touche and I met with Anthony Bush and William Sharkey of the Commission staff, at their request. We provided them with paper copies of two instruction manuals for running the Hatfield Model Version 2.2 Release 1 which facilitate running the model either in an automated or in manual mode. We also provided them with an electronic copy of a set of Excel macros that automate the process of running the Hatfield Model and demonstrated the operation of the macros.

Due to the late hour of the meeting, two copies of this Notice and the presentation material are being submitted the following business day along with a diskette containing a copy of the macros and templates to the Secretary of the FCC in accordance with Section 1.1206(a)(1) of the Commission's rules. Copies of the diskettes are available through ITS.

Sincerely,

Michael Lieberman

Attachments

cc: A. Bush  
W. Sharkey

No. of Copies rec'd 042  
List A B C D E



RECEIVED

JUL 11 1996

FEDERAL COMMUNICATIONS COMMISSION  
OFFICE OF SECRETARY

# ***Instruction Manual***

---

**Benchmark Cost Model & Hatfield Model**

*with Troubleshooting Tips*

---

# I. GETTING STARTED

## A. Requirements

### HM Modules<sup>1</sup>

- Line Converter (INPUT22.XLS)
- Wire Center (WCINV22.XLS).
- Convergence (CONV22FCC.XLS)
- Expense (EXP22FCC.XLS)

### BCM Modules<sup>2</sup>

- Datamaster
- Loop

### Inputs

- Raw Data (NVDTIN1.XLS, etc.)
- Line Totals file
- LERG data (switch, tandem and stp locations)
- DEM & Call totals by company
- Formatted ARMIS financial data (PTNV.WK3, etc.)
- Debt/equity figures for company - Annual Report or oth source

The Hatfield Model (HM) consists of four modules<sup>3</sup>: Line Converter, Wire Center, Convergence, and Expense. The Wire Center module uses inputs from the Benchmark Cost Model (BCM), but the BCM is not part of the HM, and must be purchased separately. All other inputs for the Hatfield model are publicly available.

In addition, these instructions assume general Excel skills on the part of the user.

When running the model, instructions to copy the contents of a given sheet or a set of columns refer to the data in that sheet, not the titles. Also, rows should only be copied when they contain relevant data. Rows populated entirely with zeros, found below the range of relevant data, should not be copied. In addition, errors (#N/As) in this range will not affect the outcome of the model. Lastly, the instructions will clearly specify when an entire sheet must be copied.

---

<sup>1</sup> All references to the Hatfield Model (HM) refer to the four modules filed with the FCC on June 21, 1996.

<sup>2</sup> All references to BCM refer to the Benchmark Cost Model, Version 1, filed on September 12, 1995. Raw data for all 50 states was filed on December 1, 1995.

<sup>3</sup> These instructions will refer to the HM Modules by these names.

## B. Directory Structure

These instructions will assume a basic directory structure as follows:

The main model directory (C:\HATFIELD COSTING MODEL) should contain three folders or subdirectories: HM -- VERSION 2.2, DATA, and OUTPUT<sup>4</sup>. The HM -- VERSION 2.2 subdirectory should contain all BCM and HM modules<sup>5</sup>. For consistency with the automated version of the Hatfield Model, these files should be renamed as follows:

*0-Line Converter\_ul.xls*

*1-Datamaster.xls*

*2-Loopmaster*

*3-WireCenter\_524.xls*

*4-Convergence\_10.xls*

*5-Expense\_524.xls*

The HM -- VERSION 2.2 subdirectory should also contain the workfile template, *workfile.xls*, which can also be created using these instructions, and the automated version of the workfile template, *template.xls*.

The DATA subdirectory should contain all original data files including raw data, LERG data, ARMIS reports and DEM and call totals.

The Output subdirectory/folder is used to store both partially and fully completed workfiles.

---

<sup>4</sup> These instructions will italicize file names and capitalize directory or subdirectory names. Sheet names will be marked with quotation marks. For example: HM -- VERSION 2.2 *workfile.xls* "Raw Data" denotes the sheet named "Raw Data" in the workfile file, found in the HM -- VERSION 2.2 subdirectory.

<sup>5</sup> The names of these files may vary.

---

## II. CREATING A WORKFILE

A workfile is an Excel workbook which stores all the original raw data, i.e. switch location input, CBG data, and the outputs of each module. A template workfile, *workfile.xls*, has been created to help the user identify where output sheets should be saved and how they will be used in later modules, since the output of one module is the input of another module. Thus, the workfile becomes a central point for assessing and tracking a specific model run. The user can also create his/her own workfile template.

The workfile will remain open throughout the process of running the BCM/HM models. The process is sequential, in that the output of one module is used as input for another module. Data is never moved directly from one module to another, however, but is copied into the workfile, then moved to the appropriate module as required.

As such, no two modules should be open simultaneously. The only files open at any given time should be the workfile, the module being run, and any necessary data files. Other programs (MS Office, Lotus Notes, etc.) should also be closed when the model is being run. Because of the size of individual modules, especially the Loopmaster and the Convergence Module, keeping other files or programs open will slow down model processing.

### A. Creating a new workfile

1. To create a workfile, open the *workfile.xls* file from the HM – Version 2.2 subdirectory, and save it as your new workfile in the OUTPUT directory. Save the file with an easily understood name, such as *Wisconsin\_RBOC.xls* or *North Carolina\_GTE.xls*. Now you can begin populating your new workfile with data.

### B. Populating a workfile

1. Your new workfile should be populated with the raw data necessary to run both the BCM and the HM. Any changes made to this data should be made to the data in the workfile, not to the original data.
  - a) Raw Data - From the DATA subdirectory, open the raw data file for the state you wish to analyze. Sort the raw data by company. Copy columns A-N of the rows that contain data for the company you wish to analyze into the workfile "Raw Data" sheet.

- b) LERG Data - From the DATA subdirectory, open the file containing the wire center/LERG data for the company you are analyzing (for ICOs use independent wire center data). Copy and paste the wire center information into the workfile "Switch Loc" sheet. Be sure to copy the entire sheet, including STP and Tandem locations, just below the switch location data.
- c) Trim phantom characters (blank spaces after CLLI codes) in the "Raw Data" and "Switch Loc" sheet of the workfile. Select the column that contains CLLI codes, and perform an edit-find-replace. Press the space bar once in the "find" box and do not put anything in the "replace" box, then select "replace all" to find and delete blank spaces.
- d) ARMIS Data - From the DATA subdirectory, open the file containing the ARMIS expense/revenue data for the company you are analyzing. The center of the top of the sheet should show the company name as the code for the company being analyzed (e.g. SBGA for Bell South - Georgia). The upper-left corner of the first sheet should be marked "Transformed", to show that the file is ready to use. Copy the entire sheet to the workfile "ARMIS" sheet.
- e) Close all files except the workfile. You have now populated your workfile, and you are ready to run the BCM and the HM.

---

### III. RUNNING THE BCM AND THE HM

#### A. Line Converter<sup>6</sup>

1. Copy the contents of the new workfile "raw data" sheet to the "input" sheet of the Line Converter module, *0-Line Converter\_ul.xls*.
  - a) Open *0-Line Converter\_ul.xls* (Line Converter module)
  - b) Copy columns A-N of the workfile "raw data" sheet (data only, not titles)
  - c) Go to the Line Converter "Input" sheet
  - d) Paste-Special-Values to columns A-N, starting in cell A-2
  - e) Sort by CLLI, Quadrant and Cntrd dist ft. (centroid distance)
2. Copy the relevant Access Line totals from the file containing line totals in the DATA subdirectory to the "output" sheet in the Line Converter module (Line Converter table, columns V-Y, row 3)<sup>7</sup>.
  - a) Open the file containing line totals in the DATA subdirectory
  - b) Find the company you are analyzing and copy the line total information
  - c) Go to the Line Converter "Output" sheet
  - d) Paste-Special-Values beginning in cell V-3.

---

<sup>6</sup> Instructions for the automated version of the BCM and HM are in boxes at the beginning of each module section.

<sup>7</sup> This data is also available in the ARMIS expense/revenue reports, but the individual fields are in a different order. Use care when copying and pasting these figures from the ARMIS report.

3. Insert the following standard Line Converter fractions in the Line Converter table:

0.00	0.05	0.00	0.00
0.06	0.13	0.04	0.01
0.12	0.26	0.08	0.01
0.18	0.39	0.12	0.02
0.24	0.52	0.16	0.02
0.30	0.70	0.20	0.03

4. Press F9 to calculate<sup>8</sup>
5. The module will calculate new line totals based on the standard Line Converter fractions, and will show a percentage difference in the top box of the Line Converter table. The user must manipulate the standard Line Converter fractions, maintaining the same approximate ratios, until the percentage difference is less than one half of one percent (.5%). The percentage difference may be negative, but all Line Converter fractions must be positive values.
6. Copy the contents of the Line Converter "output" sheet into the workfile "Line Converter" sheet.
- a) Copy the data in columns A-Y from the "output" sheet of the Line Converter Module.
  - b) Paste-Special-Values into the workfile "Line Converter" sheet, starting in cell A-2.
7. Save the workfile and close the Line Converter module and access lines file.

---

<sup>8</sup> Do not touch the keyboard while the model is calculating. It may take a few seconds or longer to begin showing the percentage completed at the bottom of the page, and it will show "Ready" when it has finished calculating.



## B. Datamaster Module

1. Sort workfile "Line Converter" data and copy into the Datamaster module, "Data&Calcs" sheet.
  - a) Open *1-Datamaster.xls* (Datamaster Module)
  - b) Sort the contents of the workfile "Line Converter" sheet by [CLLI, Quadrant, Centroid dist ft]
  - c) Copy columns A-N of the workfile "Line Converter" sheet
  - d) Go to Datamaster module "Data & Calcs" sheet, and Paste-Special-Values
2. Press F9 to Calculate
3. Use Edit-Find-#N/A to check for errors in "Data&Calcs" sheet and the "Output" sheet. See Troubleshooting guide if #N/As are found.
4. Copy "output" sheet to workfile "Datamaster" sheet
  - a) Go to the Datamaster module "Output" Sheet
  - b) Copy the data in columns A-L (data only, not titles)
  - c) Go to workfile "Datamaster " sheet and Paste-Special-Values columns A-L
5. Perform logic test on the Distribution Cable Multiplier<sup>9</sup>
  - a) Copy column J to column M
  - b) In cell J2, type the following logical test  
`=if(and(i2<200,h2<200),M2*20,if(and(i2<200,h2>200,h2<400),m2*3,m2))`
  - c) Copy data in cell J2 into every row in column J
  - d) Press F9 to perform Logic Test
  - e) Save the workfile and close the Datamaster Module

---

<sup>9</sup> This logic test may already be in your workfile template. If not, it can be saved there and copied into column J during future model runs.

## **C. Loopmaster Module**

1. Copy workfile "Datamaster" sheet (A-L) to Loopmaster "Input" sheet and sort.
  - a) Open *2-Loopmaster.xls* (Loopmaster Module)
  - b) Go to the workfile "Datamaster " sheet
  - c) Copy the data in workfile "Datamaster" sheet, columns A-L, starting in cell A-2
  - d) Go to *2-Loopmaster.xls*, "Input" sheet
  - e) Paste-Special-Values to columns A-L, starting in cell A-2
  - f) Sort the data by [CLLI, Quadrant, B]
2. Press F9 to Calculate. This may take three to ten minutes.
3. Use Edit-Find-#N/A to check for errors in the Loopmaster "Costing" sheet. See the troubleshooting guide if #N/As are found.
4. Copy the Loopmaster "Costing" sheet (columns A-AK) to the workfile "Loopmaster" sheet.
  - a) Go to the Loopmaster module "Costing" sheet
  - b) Copy the data in columns A-AK. Do not copy the titles or the zeros below the relevant data range.
  - c) Paste-Special-Values to the workfile "Loopmaster " sheet, starting in cell A-3
5. Save the workfile and close the Loopmaster Module.

## **D. Wire Center Module**

1. Copy the Line Adjusted raw data from the workfile "Line Converter" sheet to the Wire Center module "lata mod data in" sheet.
  - a) Open *3-WireCenter.xls* (Wire Center Module) in the HM – VERSION 2.2 subdirectory
  - b) Go to the workfile "Line Converter " sheet
  - c) Copy columns A-Y of the workfile "Line Converter" sheet
  - d) Go to the Wire Center module, "lata mod data in" sheet
  - e) Paste Special Values to columns A-Y, starting in cell A-2

2. Copy the wire center location data from the workfile "Switch Loc" sheet to the Wire Center "switch location input" sheet.
  - a) Go to the workfile "Switch Loc" sheet
  - b) Copy the data in columns A-Y
  - c) Go to the Wire Center module, "switch location input" sheet
  - d) Paste-Special-Values to columns A-Y, starting in cell A-2
3. Copy tandem and STP locations from the bottom of the "Switch Loc" sheet in the workfile to the Wire Center "wc line tots & VH" sheet
  - a) Go to the workfile "Switch Loc" sheet. Tandem and STP locations are at the bottom of the sheet, below the wire center locations.
  - b) Copy the tandem data, starting with the LATA # (include all LATAs) to column K only, even if there are more tandem locations.
  - c) Go to the Wire Center module, "wc line tots & VH" sheet
  - d) Paste-Special-Values, starting at cell K-26
  - e) Go back to the workfile, "Switch Loc" sheet
  - f) Copy the stp coordinates beginning with the LATA number (up to 5 columns of data)
  - g) Go to the Wire Center module, "wc line tots & VH" sheet"
  - h) Paste-Special-Values, starting at cell K-4
  - i) Make sure tandem and stps are sorted in ascending order by LATA
4. Copy Call and DEM data from the call file in the DATA subdirectory to the Wire Center "traffic and cost inputs" sheet
  - a) Open the file containing the local calls; intralata intrastate; interlata intrastate; interlata interstate; and local, intrastate and interstate DEM data.
  - b) Identify the COSA for your state then copy the local call total only.
  - c) Go back to the Wire Center module, "traffic and cost inputs" sheet, and paste the call totals number into cell F58 (local call attempts)
  - d) Back in the data file, copy the remaining data (intralata intrastate; interlata intrastate; interlata interstate; and local, intrastate and interstate DEM data)

- e) Go back to the Wire Center module, "traffic and cost inputs" sheet, and Paste-Special-Values-Transpose (the data should be pasted vertically) into cell F-60
5. Press F9 to Calculate
6. Refresh Pivot Tables in the Wire Center Module
  - a) Go to the Wire Center "wire center VH in" sheet
  - b) Put your cursor inside the pivot table on the left (ex. Cell A-2)
  - c) Refresh the Pivot Table by selecting Data-Refresh Data (select "OK" to the message "Pivot Table has changed")
  - d) Go to the Wire Center "wc line tots & VH" sheet
  - e) Put your cursor inside the pivot table on the left (somewhere in columns A-F) (#N/As next to the first row of the pivot table will not affect the outcome of the model run.)
  - f) Refresh the Pivot Table by selecting Data-Refresh Data (select "OK" to the message "Pivot Table has changed")
7. Press F9 to Calculate.
8. Check for '#N/As' in the "distances" and "wire center investments per line" sheets. If '#N/As' are found, refer to the troubleshooting guide. #N/As in the range filled with zeros, below the relevant data range, will not affect the model.
9. Copy "wire center invest per line" (columns A-AC) to the workfile "Wire Center" sheet.
  - a) Go to the Wire Center "wire center invest. per line" sheet
  - b) Copy the contents of columns A-AC. Be sure to copy all the information in column AC, even if the other columns are blank
  - c) Go to the workfile "Wire Center " sheet
  - d) Paste-Special-Values to columns A-AC
10. Save the workfile and save the Wire Center Module with a name that reflects its new contents, such as WC\_SBGA.xls. You may want to refer back to this populated module later.
11. Close the workfile, the new Wire Center Module and the data file.

## **E. Convergence Module**

1. Copy the workfile "Wire Center" sheet (columns A-AC) into the "wire center investments" sheet in the Convergence Module
  - a) Open *Convergence\_10.xls* (Convergence module), in the HM – VERSION 2.2 subdirectory. This module is very large and may take twenty minutes or more to open.
  - b) Go to the workfile "Wire Center" sheet
  - c) Copy columns A-AC of the workfile "Wire Center" sheet. Be sure to copy all the information in column AC.
  - d) Go back to the Convergence module, "wire center investments" sheet
  - e) Paste-Special-Values to columns A-AC of the Convergence "wire center investments" sheet
2. Copy the workfile "Loopmaster" sheet (columns A-AK) into the Convergence "costing" sheet.
  - a) Go to the workfile "Loopmaster " sheet
  - b) Copy the contents of columns A-AK in the workfile "Loopmaster" sheet
  - c) Go back to the Convergence module "costing" sheet
  - d) Paste-Special-Values to columns A-AK in the Convergence "costing" sheet
3. Press F9 to recalculate.
4. Refresh the Pivot Table in the "output" sheet.
5. Check for '#N/As' in the "output" sheet.
6. Press F9 to recalculate after refreshing the pivot table.
7. Copy the contents of the "ReformattedOut" sheet to the workfile "Convergence" sheet.
  - a) Copy the Convergence "ReformattedOut" sheet, cells C-30 to H-70
  - b) Go to the workfile "Convergence" sheet
  - c) Paste-Special-Values to the workfile "Convergence" sheet, starting in cell C-3

8. Save the workfile and close the Convergence Module.

## **F. Expense Module**

1. Copy the workfile "Convergence" data to the "NetworkInvestInput" sheet in the Expense Module.
  - a) Open *5-Expense\_524.xls* (Expense module) in THE HM – VERSION 2.2 subdirectory
  - b) Go to the workfile "Convergence" sheet
  - c) Copy the contents of the workfile "Convergence" sheet, cells C3:H70
  - d) Go back to the Expense module, "NetworkInvestInput" sheet
  - e) Paste-Special-Values, starting in cell C-4
2. Enter the Cost of Capital inputs and Call Data.
  - a) Go to Expense module "Inputs" sheet
  - b) Enter the percentage debt and the cost of debt and equity appropriate for the company you are analyzing
  - c) Open file containing the ARMIS Call Data in the DATA subdirectory
  - d) Search for the entity of interest
  - e) Copy the local call, intralata toll calls completed, interlata-intrastate, and interlata-interstate information (copy this information one cell at a time)
  - f) Paste-Special-Values the information in the respective cells beginning with C63. Note: call attempt data may be out of order
3. Copy ARMIS expense/revenue data to "ARMIS Inputs" sheet.
  - a) Go to workfile "ARMIS" sheet
  - b) Copy the entire "ARMIS" sheet
  - c) Go to the Expense Module, "ARMIS Inputs" sheet
  - d) Paste-Special-Values, starting in cell A1
  - e) Check the top-middle of the sheet to verify that "Company Name" is the company you are analyzing
4. Press F9 to calculate.
5. Save the Expense Module with a name that reflects its contents, such as EXP\_SBGA.

---

## IV. TROUBLESHOOTING TIPS

As a rule of thumb, whenever a “#N/A” value is in any of the cells there is a reference problem. Excel returns ‘#N/As’ whenever a formula is looking for a certain reference which is not present in the locations given in the formula. In such situations, either a new reference must be given, or the missing reference must be incorporated in the model.

### A. LINE CONVERTERS

1. Before you start, make sure that you are only calculating multipliers for the company you are studying. For example, if you are doing RBOC runs, make sure that your data set does not include CLLIs served by other companies.
2. Make sure that the ARMIS data you are using is relevant for the companies you are running. Again, if you are running an RBOC, you will only need RBOC access lines. When you run the entire state, you should sum the access lines of all companies in that state. Only sizable companies (RBOC, GTE, etc.) report access line to ARMIS. If you need to run an ICO, you will first need to identify the access lines in that state.
3. The percent difference that is calculated must be within the  $\pm 0.5\%$  range. If the difference is not within this range after the initial calculations and iteration run, check the input data (ARMIS and raw data) to make sure that you are using the correct data set. Manually adjust the values within the Line Converter table to obtain values which places the percent difference in the acceptable range (search for the columns where the line fraction category's percent difference is out of range and adjust these numbers). Press the F9 key to recalculate the overall multiplier and percent difference. If the percent difference is still not within range continue adjusting until the desired results are achieved.
4. Multiplier fractions should always increase with density range, therefore they should appear in ascending order in the Line Converter table. If not, adjust the numbers accordingly. Then recalculate to ensure that the percent difference is still within range. If it is not, follow the instructions in step 3.

5. Access lines either exist or do not exist, therefore, Line Converters must always be positive. Any negative value should be replaced by at least a value of zero or greater in the Line Converter table. If not corrected, you will notice a problem by obtaining negative costs in later modules. After replacing the negative value, recalculate and adjust as described in previous steps.

## **B. DATAMASTER MODULE**

If you find '#N/A' on the "Output" sheet of the Datamaster Module, the problem is often due to soil type reference errors. The Joint Sponsors compiled the Soil Type information found on the "Tables" sheet. The U.S. Geology Survey subsequently changed the nomenclature for some soil types. As a result, the soil types included in the Soil Type Table can either be misspelled or not be included at all. The Soil Type Table provides only two indicators: a "1" indicates that the terrain type will have an impact on placement costs, and a "0" indicates that the terrain type will have no impact on placement costs. Furthermore, the letters before the "-" indicate the major soil type and the letters after the "-" indicate variations on these soils.

1. To correct an '#N/A' problem proceed as follows:
  - a) Go to column Y of the "Data & Calcs" sheet
  - b) Search each row until you find a '#N/A'
  - c) Look for the surface texture designation in column M in the same row where the '#N/A' appears
  - d) Go to the Surface Texture Table in the "Tables" sheet
  - e) Look to see if the texture designation is in the table (it should not be since '#N/A' is in the data)
  - f) Look for the next closest surface texture type
  - g) Change the original designation to match the closest type found
  - h) Recalculate the Data Master (F9) and search for '#N/As'
2. Repeat as necessary until all '#N/As' are gone.
3. Once all soil type errors are corrected, copy column M from Data&Calcs to column M in the Line Converter sheet of the workfile.



## **C. LOOPMASTER MODULE**

Any “#N/As” in the Loopmaster Module are usually present in the input sheets to the module, i.e., they are mistakes carried over from the output of the Datamaster Module.

1. If you find “#N/As” in the Loopmaster Module output, trace back these “#N/As” to the input sheet. Then retrace these errors to the Datamaster Module’s Troubleshooting Tips section of this manual.
2. Make sure that all the cost numbers are positive. If you have negative costs, it is most likely because the data was not sorted properly before the Loopmaster Module was run. In this case, sort the input data from A-L by *CLLI, Quadrant and B* and re-run the Loopmaster Module.

## **D. WIRE CENTER MODULE**

Reference errors found in the Wire Center Module will return “#N/As” in the “Distances” or “WireCenterInvestperLine” sheets. To correct these problems, proceed as follows:

1. Investigate the presence of “#N/As” in the various columns in the “Distances” sheet. If found, go to the “LATA mod data in” sheet and click on the first CLLI code (the cursor should begin to blink in the edit window indicating that you are in the edit mode). Make sure that no extra spaces appear in the beginning or end of the character line. If they do, delete the unneeded spaces by using Excel’s “trim” function. Check the other CLLI codes to ensure that no others have this problem. Rerun the module.
2. Go to the STP and tandem tables in the “wc line tots & VH” sheet to determine what LATA numbers are logged in the table. Verify that each CLLI registered in the “LATA mod data in” sheet has a correct LATA number in the “switch location input” sheet as logged in the STP and tandem table. If not, change the LATAs in the “switch location input” sheet accordingly. Rerun the module.
3. Go to the STP and tandem tables in the “wc line tots & VH” sheet. Determine whether the LATA numbers are in consecutive, increasing order. If not, move the LATAs and their corresponding vertical/horizontal coordinates to the proper location in the table. Rerun the module.

4. Often you will find "#N/As" in the V/H columns next to the pivot table on the "wc line tots & VH" sheet. If that is the case, check for the following:
- a) In some instances, the CLLI codes in the Wire Center Input sheet are misspelled. Write down the name of the CLLI code that contains an "#N/A" and look for that CLLI code on the "switch location input" sheet, in column A (most often, the 7th and or 8th digit of the CLLI code are the ones misspelled). If that is the case, correct the spelling on the "wire center input" sheet and re-run the module.
  - b) If there is no CLLI code that is remotely close to the one in question, research the region to find out if the wire center has been sold. If so, remove those CLLIs from your raw data and re-run the model from the beginning (starting with the Line Converters).
  - c) If the CLLIs in question are from a state other than the one you are running, either remove them or find which LATA is closest to the city (within the state) in question and substitute that in-state LATA number in the LATA column on the "switch location input."
  - d) Lastly, LATA numbers may actually appear in the "distances" sheet but columns F-H will have '#N/As' in them. Correct this problems by:  
Determining what the CLLI code is for the row where the '#N/As' appears
  - e) Finding the same CLLI code in the "switch locations input" sheet
  - f) Changing the LATA numbers to reflect the correct LATA. It may be incorrect due to a simple typing error. Consult a LATA map to verify the LATA number in question. Also, ensure that the correct LATA is in the STP/Tandem table on the "wc line tots & VH" sheet. Rerun the module.

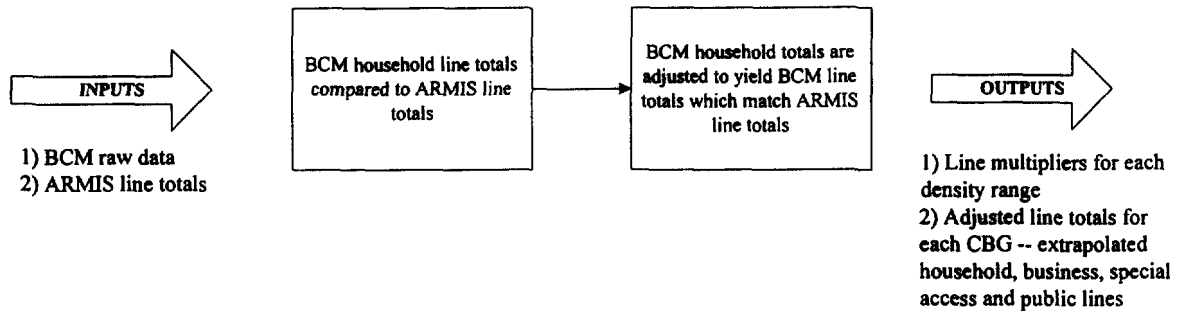
## **E. CONVERGENCE MODULE**

The Convergence Module has limitation on the number of lines that may be input. The output from the wire center, which is part of the input for the Convergence Module, cannot contain more than 1,500 records. Likewise, the Loopmaster Module's output, which is used as the other part of the Convergence Module input, cannot have over 5,300 records. If any of the line limits are surpassed, the data beyond these limits are not registered, hence the results would be incomplete and erroneous.

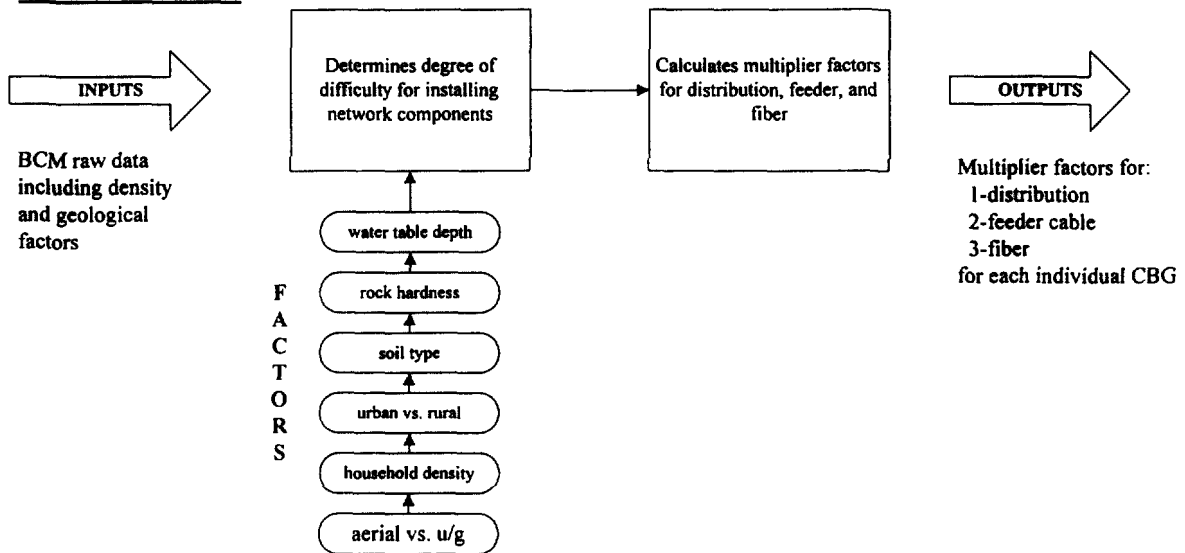
If the previous modules were run correctly and all previous data issues have been successfully resolved, the Convergence Module should only present one type of "#N/A" error. This error only occurs when a state or region lacks lines in a particular density. You may find this error if you run a small independent company that serves a rural area, thus it is more likely that the small company would not serve any customers in the 5,000 density range. The reason that the model would return a "#N/A" error is that the Excel Pivot Table is searching for data in a particular density range and can not find any, generating the error. To correct this problem:

1. Go to the workfile and replace the "#N/A" with a number that approximates zero, e.g. 0.000001 or 1E-200 (If the "#N/As" are not replaced by zero (0), the Expense Module will not run correctly and will return #Div/0!). Then rerun the module.

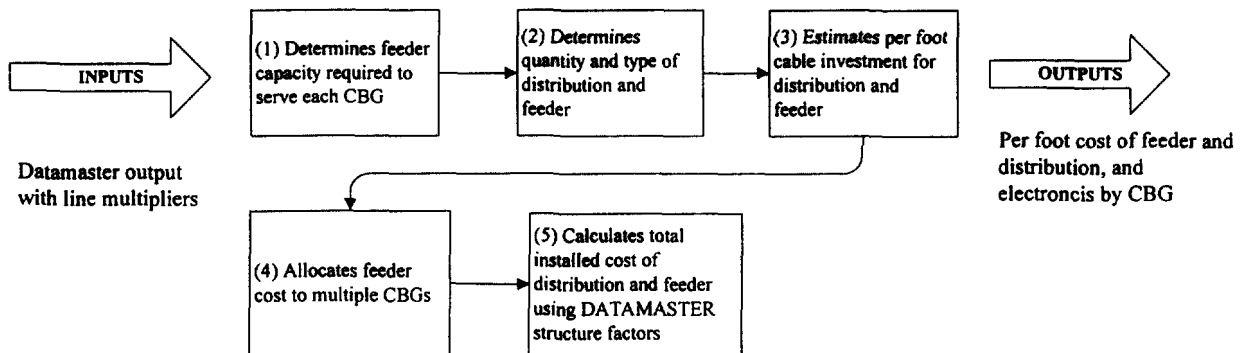
## #1 LINE CONVERTER



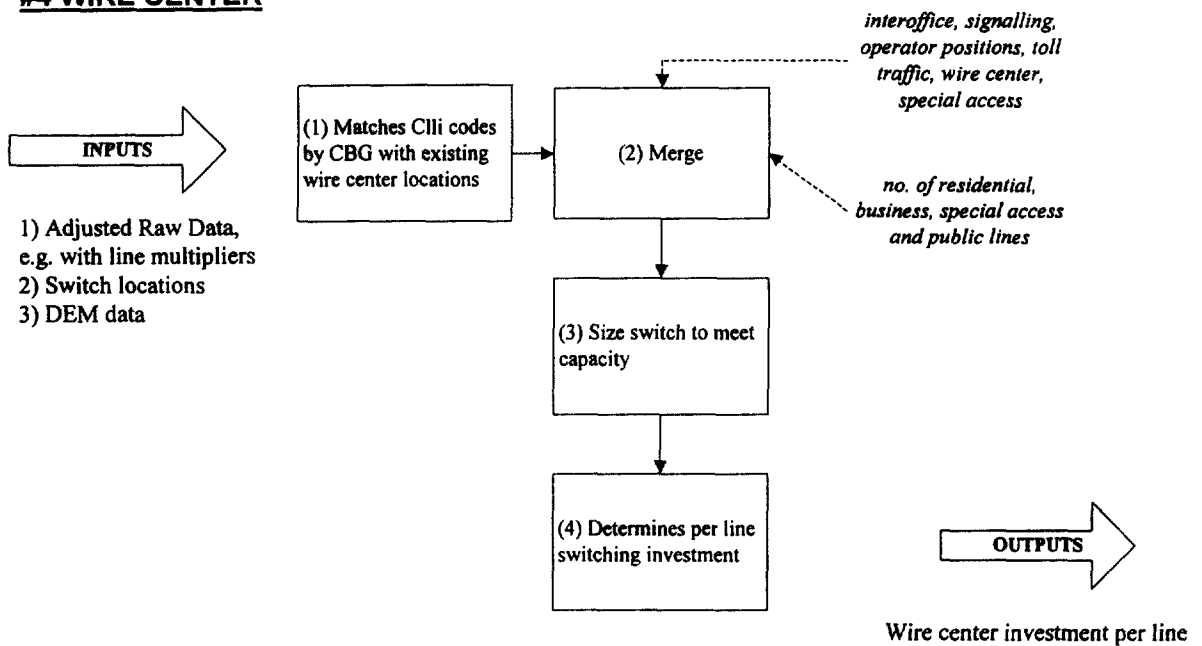
## #2 DATAMASTER



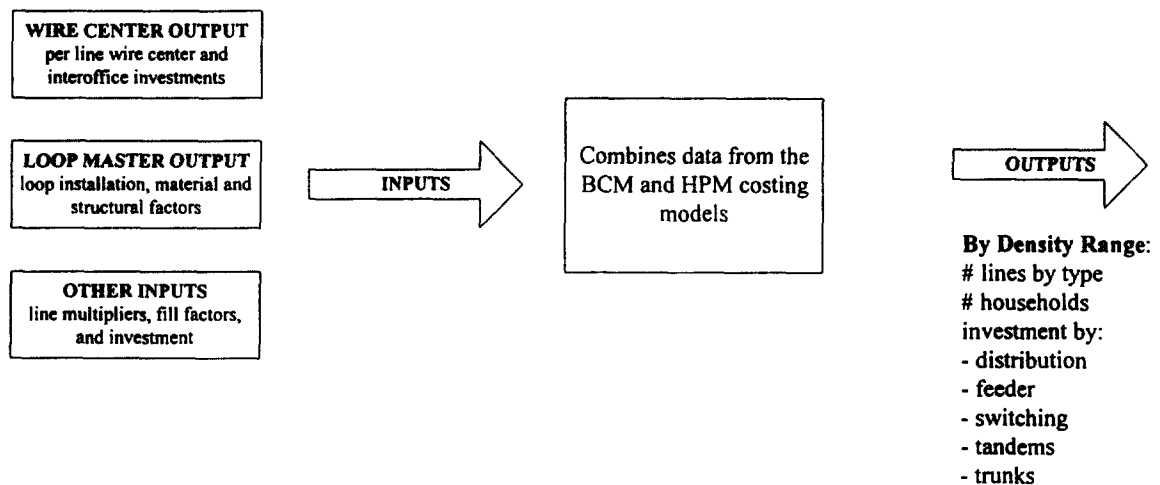
## #3 LOOPMASTER



#### #4 WIRE CENTER



#### #5 CONVERGENCE



Re: Responses to the request for information raised during a collocation meeting with FCC Staff on July 8, 1996

1. Please provide a proposal to ensure that claimed space exhaustion by the ILEC is indeed a problem.

In order to raise a claim of space exhaustion the ILEC should be required to file a statement of fact regarding space exhaustion, and its efforts to avoid exhaustion. This is a statement that no space is available for use by a requesting CLEC. In this filing the ILEC must include the following data:

- Central Office Common Language Identifier
- Requesting CLEC including amount of desired space
- Total space at the location
- Total space split between network, administrative and other
- Central office rearrangement /expansion plans
- Relationship of working plant, spare and non-working
- Efforts to avoid exhaustion

The ILEC shall allow the requesting CLEC to inspect the central office. If the CLEC disagrees with the ILEC's statements concerning the exhaust, an audit of the central office would occur within 30 days of the filing. Members of the audit team would consist of at least one member from the ILEC, CLEC and Public Utilities Commission. Findings of this team would be presented to the Public Utilities Commission within 30 days after the audit and would include a recommended resolution. If the team members can not agree, each member may separately specify its proposed resolution, and supporting facts.

2. Please provide a description that identifies the difference between mid-span meet and virtual collocation, highlighting any technical and pricing differences.

In a virtual collocation arrangement the CLEC has purchased equipment but leased it back to the ILEC. That equipment resides in the ILEC central office. The CLEC directs the uses of that equipment to the ILEC. The ILEC maintains, tests and provisions that equipment on behalf of the CLEC for a fee. The CLEC then brings its fiber optic cable into a ILEC building. The fiber is then terminated on an ILEC's light guide cross connect (LGX ) passive patch panel device. The ILEC then runs tie cabling to the appropriate CLEC equipment in the central office. The circuit coming into the building is not altered in any manner. If there is trouble, it is easily identified as being before or after the patch panel with just a simple test. In the case of loop resale where the CLEC has its own switch, virtual collocation is desirable so that testing of individual lines can occur.

In a mid-span meet arrangement, the demarcation of ownership occurs outside of the central office, generally in a manhole. The fiber optic cable is spliced at the demarcation point and ownership changes. The ILEC then brings the cable into the building and terminates it on its LGX passive patch panel. If there is trouble and it is determined that it is on the incoming side of the patch panel then the splice must be undone to determine whether the trouble is before the splice and, thus, whose responsibility it is to fix the trouble. This testing is a very costly and time consuming process. In this arrangement, the CLEC has no equipment within the ILEC central office. This arrangement is generally used for terminating traffic arrangements where testing of individual lines is not required.

The conclusion is that if you look at the termination on the LGX panel, there is no difference between the two cables as they enter the building. The difference is in ownership, responsibility to maintain and fix trouble, as well as need to perform testing.

3. Does the Commission have the legal authority to prohibit ILECs from refusing to allow two CLECs that are physically collocated in ILEC space from connecting to one another within the ILEC building?

Yes. It would be patently unreasonable for an ILEC to attempt to prohibit CLEC-to-CLEC interconnection among collocating CLECs within the ILEC building or other facility. Each CLEC has the right to control its own equipment, and to choose with whom to interconnect. The prohibition the ILEC seeks to impose in this hypothetical would be anticompetitive in that it would require CLECs to incur needless additional expense to interconnect by running facilities outside of, and then back into, the ILEC building. This would be particularly unjustifiable in light of the fact that the ILEC suffers no burden by permitting a direct tie cable to connect the CLECs' facilities within the collocated space.

The 1996 Act (Section 251(c)(6)) requires ILECs to provide physical collocation "on rates, terms, and conditions that are just, reasonable, and non-discriminatory." This broad language grants the Commission clear authority to determine that the imposition by an ILEC of a "condition" to physical collocation that has the effect of raising its competitors' costs and inhibiting interconnections among carriers, while at the same time serving no legitimate countervailing interest of the ILEC, is "unreasonable" and therefore unlawful. See *AT&T v. IMR Capital Corp.*, 888 F. Supp. 221, 255 (D. Mass. 1995) ("questions of reasonableness under the communications Act are within the special expertise of the FCC"); *id.* at 244 ("reasonable[ness]" requirement "essentially invites the FCC to promulgate specific policies governing the practices of the telecommunications industry").<sup>1</sup>

---

<sup>1</sup> A related question is whether CLECs may be prohibited by ILECs from engaging in "hubbing," where they connect additional equipment of their own to their collocated equipment in the collocated space. For the reasons given above, and those stated in AT&T's Comments, p. 40 n.51, any ILEC attempt to prohibit hubbing would likewise constitute an unreasonable condition on collocation and be unlawful.



# ***Instruction Manual***

---

**Benchmark Cost Model & Hatfield Model,**

**Automated Version**

***with Troubleshooting Tips***